GENERAL COMMENTS

On June 29, 2004, U.S. EPA responded to states on recommendations made in February for designations of areas under the new fine particulate standards. In that response, EPA states that: *"Consistent with the Clean Air Act, this letter is to notify you that based on the information contained in your submittal, EPA intends to make modifications to recommended designations and boundaries in your State."* Although U.S. EPA had previously issued specific guidance on information and documentation that was expected in states' first round submittals, EPA did not use information provided by states in developing its June 29 response. In fact, EPA used very different information and methodologies in developing those proposals.

In its April and June 2003 guidance on methodologies and emissions data used in making recommendations under the PM2.5 standard, EPA outlined the importance of having *"…an available emissions data set that can be shared and used by all parties involved in the process of defining boundaries."* In order to have comparable emissions data for all areas under review, the 1999 National Emissions Inventory (NEI) was used in developing Kentucky's February 2004 submittal, as recommended by EPA. However, in EPA's June 2004 response back to states, EPA stated it had used the 2001 NEI data. This dataset has still not been made available to states for review. States have had no opportunity to review the emissions data, nor the methodology by which EPA "grew" the emissions from the 1999 NEI. Despite EPA's inconsistent approach, Kentucky took the initiative and used the most recent emissions inventory available in order to show changes in emissions levels in specific areas. This was very important in showing where additional emissions reductions had occurred within a specific geographic region.

Two of the components EPA used in their analysis of areas were county level emissions estimates for carbon and crustal emissions. EPA used the SMOKE model information from the Clear Skies modeling that was based on the 1996 NEI to generate this data. Using this modeled data, especially with 1996 information as the basis, is questionable at best and should not be used in this analysis.

Weighted Emissions Score

The Commonwealth was surprised to learn that EPA had employed the use of a "weighted emissions scoring" process to evaluate counties for emissions contributions to an area attainment problem. At no time did U.S. EPA offer information concerning this methodology. Further, EPA did not afford the states the opportunity to provide input on the appropriateness of or the science behind this methodology. This approach was revealed in late May 2004, a full three months after states had been required to submit boundary recommendations to EPA. Taking this approach, especially at such a late date, is not only contrary to boundary guidance provided to states by U.S. EPA, but insults the established designation process which allows states to use their thorough knowledge of the monitoring network and local and regional circumstances to make those designations. A full detailed explanation of the origin

of the data and how EPA has used the scoring methodology has still not been released for review.

Given the facts presented above, the Commonwealth must go on record as being strongly opposed to the use of this process.

However, since EPA has utilized the weighted emission scores in its $PM_{2.5}$ response letter to the states, it still remains important to document the problems that exist with the methodology used by EPA in determining those weighted emission scores:

- EPA did not include adjacent county (i.e., county outside the MSA) emissions into the total emissions for an area when calculating the weighted emissions score. The weighted emissions score, in some instances for counties within the MSA, would have been drastically different if all counties emissions had been included in calculating the weighted emissions scores.

- EPA's choice of regional speciation monitors must be questioned. EPA, has provided no explanation how it determined "appropriate" regional monitoring sites to use in the weighted emissions scoring process. This eliminates states air quality agencies from having any input on the appropriateness of those sites. States have "background" monitors located to determine background pollutant levels. For EPA to ignore the availability of area specific information, or request input from states on the appropriateness of using one site versus another, is shortsighted. It stands to reason that an in-state regional background monitor would have been more representative of the area than a monitor located in another state. This could have drastic impacts on the results obtained from the analysis.

- EPA used the SMOKE model information from the Clear Skies modeling that was based on the 1996 NEI to generate the total carbon and crustal components of the emissions data used in their analyses. This data was used in an attempt to generate urban excess in the weighted emissions score calculation. This approach is subjective at best.

- The use of a cumulative percentage roll-up of the weighted emissions scores is inherently flawed since it causes the inclusion of counties that have scores that are significantly lower than the top scoring counties in an area. The cumulative roll-up is purely an arbitrary mathematical exercise that does not take into account important information (e.g. geographic location, predominant wind patterns, future national control measures, etc.) that should be considered in making $PM_{2.5}$ nonattainment designations.

- EPA has still not supplied the speciation data nor the timeframes used in their analysis for the background monitor sites used in the regional analysis.

- Other national studies performed have taken a different approach in determining source apportionment. Of particular note are conclusions contained in *2003 National Air Quality and Emissions Trends Report* that compares the percent difference in PM constituency from regionally representative monitors and urban monitors. While this approach on the front end is similar to the methodology EPA used, EPA went a step further in attempting to use that data to correlate with actual emissions within a set geographic area. Of a more specific concern, when reviewing regional background PM constituency compared with urban data, sulfates appear to make up a small percentage of urban excess. We believe this shows that sulfates are a regional problem and that the proposed regional controls of SO2 should alleviate the problem. The second concern is that carbon mass seems to make up the largest percentage of the urban excess and it appears that mobile sources are a major contributor to PM2.5 levels in our urban areas. With the proposed federal changes to fuels and engine requirements, contributions from this sector will also be lowered within the next few years.

Additional Regional/National Controls

EPA has finalized or is in the process of finalizing several new control initiatives that are designed to lower emissions that contribute to PM2.5 levels. The implementation dates for many of these initiatives will begin within the next two years and in many instances, will be in place well before control plan submittal deadlines or attainment dates. This fact should lead to the conclusion that greater caution should be exercised before saddling an area with a nonattainment designation when no local control strategies will be available or required.

Clean Air Interstate Rule (CAIR)/BART

In the June 29, 2004, response to Kentucky, EPA has proposed nonattainment designations for several counties, either within the MSA or adjacent to an MSA, due to the location of a power plant within their borders.

The May 5, 2004, proposed BART rule states on page 25204 that "*Based on our current evaluation, we believe the IAQR rule, as proposed, is clearly better than BART for those affected EGUs in the affected States which we propose to cover under the IAQR. We thus expect that the final IAQR would satisfy the BART requirements for affected EGUs that are covered pursuant to the final IAQR*". Per this EPA finding regarding PM and EGUs under the IAQR/BART, EPA should not include counties in PM2.5 nonattainment areas because they contain a power plant. EPA has determined that the IAQR (i.e., CAIR) will achieve the necessary PM air quality improvements.

Upon implementation of the Clean Air Interstate Rule (CAIR) SO_2 emissions from power plants will be reduced nationwide by 3.6 million tons in 2010 (approximately 40 percent below current levels) and by another 2 million tons per year when the rules are fully implemented (approximately 70 percent below current levels). NOx emissions would be cut by 1.5 million tons nationwide in 2010 and 1.8 million tons annually in 2015 (about 65 percent below today's levels).

To designate counties nonattainment because they have a power plant in them would place additional hardships on the county and would be counterproductive since the EGUs in the entire region will be mandated by EPA's CAIR rule to significantly control their PM precursor emissions without being designated nonattainment. In addition, Non-EGUs in Kentucky will also be required to put on BART controls, which will further achieve PM air quality improvements.

Mobile Controls

In many areas, EPA based potential nonattainment designations on the supposition that population, commuter traffic, or local VMT played an important role in determining potential impacts on PM2.5 levels within an MSA. It is not feasible to designate a county as nonattainment if the only reason an area has been included was due to these population-based factors. With national controls being implemented that would address this contribution, including these counties as nonattainment would place additional, burdensome planning requirements on these local areas for no useful purpose. Due to the Tier 2 Vehicle and Low Sulfur Gasoline, scheduled to be in place by 2006, average national gasoline sulfur levels will be 90% lower. The new Low Sulfur Diesel Rule, scheduled to be phased in beginning in 2007, along with new clean engines operating requirements will reduce NO_x emissions by 50%, and reduce PM emissions by more than 90%. The implementation of these new federal rules will significantly decrease the fine particulate contribution in and from areas impacted by population and transportation factors.

The final compliance dates under the CAIR and BART rules are set for relatively the same time frame as attainment of the "presumed" attainment date for PM2.5 levels. As seen with all control programs, emission reductions are seen in advance over a broad time frame with final compliance achieved on a specific date. Emission reductions of PM and precursor emissions will begin to take place well in advance of the final compliance dates for PM attainment.

Additionally, although final compliance for the national engine and fuel improvements will take place over several years before being fully implemented, incremental improvements will be seen in the urban areas beginning within a year after designations.

Continuing PM Reductions in State

Ambient data for the period of 1999-2004 continues to show a downward trend in $PM_{2.5}$ levels in Kentucky. This improvement in $PM_{2.5}$ levels is consistent with those seen in the southeast during the same time period. According to a recent EPA's report on air quality improvements, $PM_{2.5}$ levels have decreased 18% in the southeastern U.S. since monitoring began in 1999.

It would appear that consideration of this data would be prudent in the designation process. Failure to do so ignores the fact that some areas in Kentucky are on track to achieve the PM2.5 standard by the end of 2004.

Contradictions in the June 29, 2004 Response Letter

There were many contradictions or inaccuracies noted throughout the June 29, letter from EPA

- On page 3, the letter states *"Campbell and Kenton Counties…and both counties part [sic] of the Cincinnati 1-hour ozone nonattainment area due to violating monitors."* This statement is incorrect. On August 30, 2002, EPA's final rule, redesignating the Kentucky portion of the Cincinnati-Hamilton 1-Hour Ozone Nonattainment Area to maintenance, became effective.
- On page 4, the table that EPA utilizes in it's analysis of the weighted emissions factor for the area includes Montgomery County, Ohio. However, Montgomery County, Ohio is not in the MSA, it is in the Dayton-Springfield MSA, so the emissions from this county would skew the analysis.
- Comments on page 5 and page 12 indicate that even though a monitor shows attainment with the standard, being close to the standard is a reason for nonattainment designation.
- On page 20, the letter states *"Although Pulaski County This factor did not appear significant for the remaining counties listed in this table."* It appears that a sentence ending is missing.
- On page 22, the letter states that Madison County *"…has the largest number of workers commuting into Fayette County (6,870), which is relatively insignificant for such a large county as Fayette. Based on the analysis for this factor, there are no counties with commuting data showing a potential to contribute to the PM 2.5 violations in Fayette County."* On page 23, the letter states, *"…no other Kentucky counties, with the exception of Madison County, have VMT and commuting data with a potential to contribute to the PM 2.5 violations in Fayette County."* One page indicates that commuting data indicates no potential impact; the next page states that the commuting data indicates a potential impact.

Date Extension

EPA indicated in previous guidance its intention to consider 2002-2004 monitoring when making PM2.5 designations. Kentucky feels that EPA should follow through with its original intentions.

Kentucky believes that the date for official designation should be extended until after the beginning of 2005, instead of mid-November 2004. This would allow states to utilize the 2004 data, and would provide the use of the most recent available data, a requirement that EPA consistently espouses.

Meteorological Conditions/Upwind Counties

The geographic location of a county and the historic prevailing wind data in an area has an impact on PM2.5 monitored values. In addressing comments from information presented in the February 2004 recommendations from Kentucky, EPA claims that an area may contribute to the monitored violation even if it is located downwind of another area, due to this being a "year-long" standard. EPA has previously made numerous references to "upwind areas impacting downwind areas" and "predominant wind patterns." This has been the premise for several control programs recently implemented by EPA and most recently set the stage for the CAIR and BART proposals. Therefore, if the geographic location and predominant wind patterns are an important variable when determining when and at what levels PM impacts are seen, including at Class I areas, then the same variable should be taken into account when EPA makes final PM2.5 designations.

Conclusions

- EPA should abandon its approach of using the weighted emissions factor screening levels as the sole reason to include an area in nonattainment. The method used by EPA has not been reviewed by states and other interested parties. This study, while applying similar methodologies for parts of the analysis goes beyond comparison and looks for ways to associate a regional pollutant on a localized level, without taking into account other variables in a geographic location.

- EPA is in the process of adopting CAIR to lower the regional concentrations of SO_2 and NO_x. New fuel and engine requirements to assist in lowering PM concentrations in our urban areas are being implemented within the next two years. EPA's position has been that the implementation of these national/regional controls will alleviate PM2.5 problems in most areas of the nation. To require nonattainment designations for "possible potential" contributions from these sectors, when control programs have already been adopted to address them is nothing more than a unnecessary paper exercise for state and local agencies resulting in costly resource expenditures.

- As other national studies have shown, urban PM levels can definitely be driven by localized activities. EPA needs to be cognizant of information submitted by

states where there appear to be definite "pockets" of nonattainment and an urban core impact area. This can most readily be seen where there are monitors attaining the standard located within a short distance of a monitor in violation.